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The Role Of International Technical Assistance In National Development

Edited by
Lee Kok Cheong

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**UNITED NATIONS ASSOCIATION
OF SINGAPORE**

The Role Of
International Technical
Assistance In
National Development



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International Technical Assistance in

Asia, Europe and Africa

Mr. V. V. Anand

Regional Representative of UNCTAD

for Malaysia, Singapore and Brunei

The Singapore Hydro-Electricity Co-operation Programme

Dr. Alan MacFarlane

Technical Officer

Asian Economic Co-operation Programme

Research in National Development: The IDRC Experience

Mr. Lee Kuan Yew

President of the Republic of Singapore

International Development Research Centre

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Mr. V. Pradhan

Director

United Nations Programme

Scientific and Cultural Organization

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Dr. Alan MacFarlane

Technical Officer

Asian Economic Co-operation Programme

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Opening Address

President: Dr Tham Seong Chee

Your Excellencies, Honourable Guests, Ladies and Gentlemen,

On behalf of the United Nations Association of Singapore, I would like to extend a warm welcome to all of you to this one-day seminar on "The Role of International Technical Assistance in National Development". This seminar will be conducted on a very informal basis. We hope that this would help to generate a far ranging enquiry into the intricacies of international technical co-operation and assistance to-day.

It is a regrettable fact that more often than not positive and far reaching results arising from international technical assistance do not get the attention that they deserve. Instead, we are subjected to a constant barrage of reports on international disputes by the popular press, both national and international.

The subject of international technical assistance is extremely wide in scope. Whether it is a piece of advice on how to improve the packaging of a product or the construction of a huge dam, it is still technical assistance in essence. Technical assistance is not the whole scale adoption of technical expertise available by the recipient country. More frequently, it is the intelligent improvement of local know-how and skills consequent on sound technical advice received from experts.

Developing countries, quite obviously, have different resources. There are also differences of priority in development. The question therefore is how to harmonise and optimise both demands to achieve the developmental objectives aimed at. This is an area that is highly complex. Certainly its implementation is fraught with difficulty, because quite obviously development is often not purely a technical matter, as the technical experts present in this seminar will tell you. However, it will be to our benefit, if in our discussion to-day we can touch on the human aspects of technical assistance as well.

The underlying assumption of technical assistance is development in all its different facets to bring about greater efficiency and productivity in work so that an enhanced state of human welfare is achieved. Technical assistance is given or initiated because there is a belief in the need for international co-operation to secure the common good. We all share in the common effort to meet the challenges of human development.

To-day a varied range of international organizations are active in providing technical assistance — whether it is in the form of training, research or

actual transfer of physical structures such as machinery and plants. Technical assistance exists on a bilateral, regional or multi-lateral basis. We are therefore privileged to have with us to-day, some of the most knowledgeable experts on international technical assistance to address us on these questions.

International technical assistance is now going through very critical adjustments and perhaps rethinking — in view of the experience achieved over the last two decades and also possibly because of the current state of the world economy. What are the problems and prospects of technical assistance in the next decade? What new directions, if any, can be expected in technical assistance given the current international situation? It is my hope that in our deliberations this morning as well as this afternoon, we shall have the opportunity to address ourselves on these issues too.

The UN Association of Singapore is particularly honoured to host this one-day seminar. You have done us proud by your presence here this morning. For your information, the UN Association of Singapore is a voluntary organization dedicated to promoting international understanding and co-operation as a basis for securing peace and human well-being. In this regard, the Association fully supports the aims and objectives enshrined in the UN Charter.

We are extremely privileged to have with us four prominent individuals representing organizations involved in technical assistance. We are most grateful for their willingness to come here to share their expertise and experience.

UNAS would like to express its deepest appreciation for your support and participation. Finally, I would like to thank Prof. Taiganides who played a key role in getting this seminar off the ground.

International Technical Assistance — Past, Present and Future

Y. Y. Kim

Regional Representative of UNDP
for Malaysia, Singapore and Brunei

“International Technical Assistance” is a relatively recent phenomenon in the history of international politics. We read and hear about it a great deal in our daily lives nowadays, but it was not a household word, say, 40 years ago when the United Nations came into being. In fact, in none of the international documents detailing the objectives of the United Nations or governing inter-governmental relations was any mention made of “technical assistance” as a means of economic and social development. The whole idea of a secretariat of the international community providing “technical assistance” to members of the community — which we now call “multilateralism” — was simply not in the vision of the founding fathers of the UN.

If you are as old as I am or pretty close to my age, you probably have heard about the Marshall Plan at the end of the World War II, under which the United States provided public funds on concessional terms to assist the war-torn European countries in rebuilding their economic infrastructures. It was, however, a relationship established among wartime allies and was thus essentially a transaction among the governments of the North. It was only shortly after the UN System was created that the aid relationship, as a North-South phenomenon, manifested itself. It became apparent that the objectives of the United Nations, namely peace keeping, peace building and social justice for all, could not be achieved as long as certain members of the UN were too deficient in technical know-how to manage their own resources and could not conduct international relations on an equal footing.

Developed countries which founded the UN were soon to realize that political tensions were being heightened and poverty and lack of technical know-how became identified as a threat to international economic and political systems. Developing countries themselves rallied their demands for economic reform (for instance in Bandung in 1955). Economic theories and models like that of Harrod and Domar, and linear stages of growth theories advocated

by Rostow, all very much fashionable theories of the late 1950s, clearly pointed to the scarcity of capital and technical expertise as the single most serious constraint to economic and social growth. At the governmental level, however, there was superficial understanding of the fact that a wide gap existed in the levels of modern skills and knowledge available to developing countries, not to mention its adverse implications on the order of the world community at large. As the UN's decolonization programme was achieving a spectacular success and as newly emerging countries gained their political independence one after another throughout the 1950s and through the 1970s, the need was never more keenly felt that these newly independent countries should acquire modern technologies of public management just as soon as practicable. The challenge to cultivate human resources in the developing countries was enormous.

That the development of human resources being vital to economic development was articulated by an increasing number of economists and scholars notably, Dennison who studied various factors behind economic growth and attributed a large measure of such growth to a "residual" factor which could not be explained in terms of capital and labour inputs. Obviously it had something to do with advancing human skills and corresponding improvement in techniques. At this time, there was also the Chenery-Strout model, which brought in another element known as "absorptive capacity". This theory suggested a major role for technical aid, which could act as a catalyst by improving the investment in projects to expand the economic base. Such a model therefore was a boost to technical assistance and project aid.

The pioneers of the multilateral technical assistance concept, the United Nations Technical Assistance Board (UNTAB) and UN Special Fund, which preceded UNDP and which were established in the late 1940s and the early 1950s respectively, saw the concept of international technical assistance being accepted by a number of inter-governmental agencies such as the Colombo Plan, Commonwealth Fund for Technical Assistance for Development, and later the OECD's Development Assistance Committee (DAC). At the same time, an increasing number of industrialized countries began to organize massive technical assistance programmes on a bilateral basis known as ODA, Official Development Assistance, to less developed countries of their choice. This was also coupled with very energetic programmes of technical cooperation schemes launched by a number of international non-governmental organizations. Indeed the years of 1960s and 1970s saw emergence of one of the most impressive human endeavours in the modern times dedicated to technical cooperation for national development. Historians will probably describe the mid-1900s as the beginning of an era of unprecedented international cooperation through

the sharing of skills and experiences between the nations of the world.

Let's now look at the two principal sources of international technical development assistance; bilateral and multilateral. In bilateral aid, both the source of aid and the aid channel are in the control of the donor country government; in multilateral aid, the source of aid remains the donor-country government, only the channel is multilateral but controlled, to a varying degree, by donor governments. A genuine multilateral framework should involve direct generation of resources either from tax payers or by some kind of automatic mechanism which would ensure predictability and continuity of resources flows to multilateral institutions. This is, however, a distant ideal given the present international political system. The respective merits and demerits of the two forms of aid — bilateral and multilateral — have long been discussed. The merits of multilateralism appear to be the following:-

(1) Aid is available equally to all developing countries irrespective of their political persuasions or conduct of international affairs;

(2) Aid is insulated from the domestic political pressures upon donor governments and, therefore, military, strategic, and commercial considerations are minimal;

(3) Aid is assessed on technical criteria and the aid relationship thus becomes a more objective technical relationship;

(4) Standards can be set and maintained under international supervision, and aid can be more efficiently managed;

(5) Aid is not presented on any pre-determined bias and recipient-country participation is invariably ensured in the decision-making process;

(6) There is no political or diplomatic string attached to the aid; and

(7) Aid is available from the widest possible sources to suit particular needs of the recipient countries.

Having said this, I must quickly add that it is not empirically proven that multilateral aids do bear the imprint of these characteristics at all times; I am simply saying that potentials exist for aid to move in the directions envisaged. I do point out, however, that multilateral institutions are, to varying degrees, controlled by donor governments — the World Bank is a notable example. Even UNDP, which represents both donors and recipients, has no automatic device to raise resources; hence it needs to ensure that its operations keep donors continuously satisfied — in line, of course, with their (donors') criteria. This phenomenon has been highlighted more acutely than before in the recent past. It might, however, be stated that in the case of the more representative parts of the UN System, such as UNDP, donor leverage is much less than elsewhere

The quality of both multilateral and bilateral aid is determined primarily by the aims of the donor country governments. Those governments which see aid essentially as developmental, humanitarian and moral, and which attach little importance to considerations of military, strategic, commercial, and international economic system maintenance, are also those which strongly support the more representative parts of the UN System, not only in terms of the quantity of resources but also in moving these agencies towards a more ideal type of multilateralism. There is indeed, therefore, an intimate link between multilateral and bilateral aid institutions. In practice, a blend of the two is required while there is a continuing need to strengthen the UN System. The quality of international aid will improve as the bilateral system of development cooperation builds up its dynamism. After all, at present, about 90% of the available funds for international technical assistance is channelled through bilateral institutions.

Now to the "nuts and bolts" of technical assistance.

Technical assistance generally has three basic components:

- (1) Provision of experts, consultants, and advisors in both consultative and operational capacities;
- (2) Training of both general and vocational nature; and
- (3) Supply of equipment for use in support of advisory services and training.

T. A. projects may consist of one, two, or all these three elements.

T.A. is clearly one of the most significant and critical areas of development cooperation. During the first years of the 1980s, ODA receipts (i.e. funds available from all donor governments put together) have hovered around US\$35 billion annually. It is estimated that at least some US\$6.5 billion annually is allocated for T.A. of which approximately US\$700 million annually was channelled through UNDP. A simple calculation therefore indicates that only some 10% of international T.A. funds was channelled through the multilateral machinery, the remainder flowing through bilateral channels or through the World Bank. On a global scale, in 1984 alone UNDP provided to 151 developing countries and territories over US\$150 million worth of equipment, mobilized an army of some 10,000 high-level experts, and awarded 12,000 fellowships for advanced studies abroad.

Developing countries do need technical assistance in view of the scarcity of indigenous skills to perform the manifold tasks of economic and social development. An increasing number of developing countries find, however, that indigenous skills are becoming more and more available in their own countries, but their services are not always available to the governments for a

variety of reasons. Thanks to a series of innovations introduced by UNDP in the recent past including, in particular, the 'New Dimension of Technical Assistance', the UN Development System fortunately has sufficient flexibility in such circumstances to secure their services with international T.A. funds. Such an arrangement, while proven to be cost and time effective, is not normally allowed under bilateral aid procedures. The development of human resources, which is the primary aim of technical assistance and through it the attainment of self-reliance, can make a vital contribution in the form of investment capital to economic development. A growing number of economic literatures provides both empirical and theoretical support for according priority to the upgrading of human resources, and this is fully subscribed to and reflected in the UN Development System.

As has been amply shown in the case of technical assistance provided by the United Nations to Singapore, T.A. has facilitated the creation of an infrastructure of skills and institutions in developing countries. These have multiplier effects and ensure a continuous flow of trained personnel in many key sectors. Technical guidance from expatriate consultants has helped set up new or improved systems and provided valuable opportunities for on-the-job-training for the national technical personnel who in turn imparted knowledge to others. Overseas training has enabled the students and trainees from developing countries to acquire skills in their own specialized fields. In the case of the UN technical assistance system, the two fundamental conditions for it are that it must promote "self reliance" and, secondly, that it must aim at a "catalytic" effect.

The UNDP, which as you know, is the UN System's central funding and programming organization for technical assistance to developing countries, has been a steady and faithful partner of Singapore's development since 1959 (even before its independence) and throughout its nation building process, and has, through its network of field establishment and UN specialized agencies, provided technical cooperation to a large number of critical sectors such as economic planning, urban development planning, promotion of higher technologies in industry, expansion of technical, vocational and industrial education, upgrading of economic and social infrastructure such as urban transport, telecommunications, civil aviation, maritime transport, and animal waste management, veterinary services, high level civil service manpower training, etc. In the last 26 years or so, a total of about US\$28 million was allocated to Singapore from UNDP resources to support some 100 projects in the above mentioned sectors. Throughout this period, Singapore has made an intelligent use

of the T.A. from UNDP in many aspects; the Government of Singapore identified its own technical assistance requirements, prioritized them, monitored their progress, and generally maximized the assistance through serious and pragmatic application of the technologies gained. From this year all projects are directly managed and executed by the government departments concerned (and not by UN agencies), with the co-ordinating functions being performed by the Revenue Department of the Ministry of Finance. For the first time in the history of its association with UNDP, Singapore has decided to participate in a cost-sharing scheme with UNDP, which shows its maturity in its relationship with UNDP. Singapore, today, ranks the 14th among the 24 developing countries at the top bracket of economic development whose GNP CAP incomes range from US\$3,000 and upward. A new criterion for eligibility for UNDP T.A. which is under consideration would call for considerably greater voluntary contributions from these countries to the UNDP's central resources from 1987 onwards, in order that the UNDP's mandate for international development can be carried forward despite shortfalls in contributions and, in particular, substantial sum of T.A. funds may continue to be directed to less developed countries.

I have so far painted a very rosy picture of the virtues of T.A. for national development. However, I am afraid that in reality what happened in Singapore is not always replicated. There are indeed many pitfalls in making the T.A. achieve its aims of promoting self-reliance. In short, for any T.A. project to work well and succeed, all of the following conditions must be met simultaneously:

- (1) T.A. requirements must be realistically assessed and identified;
- (2) Terms of reference of experts, consultants, etc. must be accurately developed;
- (3) Special care must be paid to recruit candidates meeting all job requirements;
- (4) Once selected and assigned to duty, the experts must have qualified full-time counterparts assigned to them so that there is uninterrupted transfer of technology taking place at all phases of the project;
- (5) Senior officials of the Government must keep a close tab on the expert's work and continuously feed him with data, policy statements, and monitor and evaluate progress;
- (6) Government must fulfil its obligations for providing all necessary support and facilities; and
- (7) For training programme, placement institutions must be selected on the basis of the level of competence of the selected trainees, and programmes

of studies, observation tours, etc. must be carefully worked out keeping in mind the level of responsibilities and qualifications of the candidates selected

Let me now raise several questions in relation to technical assistance as a form of aid:

(1) Does it create increased dependency rather than self-reliance?

(2) Does it sap developing countries' initiatives to develop their own technologies?

(3) Does it interfere with national policy development?

(4) Does it lead to the transfer of inappropriate technology, irrelevant training, and, at times, to a brain drain from developing countries?

(5) Is technical assistance over-valued in view of the present methods of costing such activities?

(6) Is it often a drain on national resources?

(7) Is it a device to benefit the donors more than the recipients?

(8) Does it lead to links with certain countries where relations are already tainted by a colonial association?

These questions arise because of the distortions which inevitably occur in such a complex and large programme. You may be inclined to give "Yes" to a few questions, which would mean that T.A. does have negative impacts, but these are not inherent in technical assistance. "Yes" to some questions imply that somewhere along the way something went wrong on the part of either the donor or recipient or, possibly both. Frankly, I personally can give any number of "Yesses" from my own experience but this should not obscure the very positive elements that the T.A. provides for the national and international development.

The questions raised are essentially costs to recipients and benefits to donors and it is critically important that proper evaluation of technical assistance programmes be undertaken. In this connection, I should like to make a few simple observations in a constructive spirit of contributing to general improvements of the framework of T.A.

(1) In my view, there would be major potential in an increased multi-lateral component of technical assistance, particularly through the more representative parts of the UN System — which means the UN, UNDP, UNEPA, UNCTE and Specialized Agencies other than IBRD and IMF. Although this part of the UN System is reasonably well equipped to perform the technical assistance function with well-oiled field operation machinery, only a fraction of the total effort is channelled through it.

(2) The tying of T.A. is one of its main defects. The typical expert or the typical trainee comes from, or is trained in, the funding country in bilateral

assistance situations. There is little scope of third-country participation. Another aspect of tying is the use of T.A. as a component of capital projects right from the project identification and design stages. Such circumstances give rise to complaints of distorted aid. Pre-investment studies and technical evaluation of projects using cost-benefit analysis are increasingly important aspects of T.A. There should be complete objectivity of such assessment.

(3) The costs of T.A. are probably over-stated by the use of current methodology. About 60,000 students and trainees from developing countries go to DAC member countries every year, financed by T.A. programmes, and they represent only a small fraction of the total number of students. The marginal cost of accommodating them must, indeed, be small, since the infrastructure and the institutions are already there. This issue has been spotlighted recently by the decision of a major power to levy the so-called full-cost fees from overseas students. The same type of cost distortion occurs in the case of experts services, as the present systems rule out any search for more economic and, possibly, more relevant, expertise. There should also be an increasing resort to services available from voluntary professional groups in order to bring the costs of T.A. down. At the operational level, emphasis should be on direct transfer of technology over operational and executive functions.

(4) Tremendous scope exists for major improvements in the pattern of T.A. When appropriately utilised by recipients, and I repeat by recipients, it is a form of aid which is of immense benefit to developing countries. In an increasing number of cases, T.A. can prove to create much greater impact on the social and economic progress than capital aid which in any case cannot accomplish much unless a national management capacity is built up often through T.A.

It is incumbent upon the United Nations as it celebrates its 40th anniversary of the founding of the Organization this year, as well as the bilateral T.A. administrators to further refine their procedures of T.A. programme in order to provide maximum possible assistance to the third world in the most cost-effective fashion. The world cannot afford to have it divided into sharply polarized economic and technical poles. No nation can hope to thrive in the sea of poverty and discrimination. Everything possible must be done to stimulate growth and progress of the developing countries for the sake of a more secure future for the generations to follow. At the same time we must realize that there is no short-cut to social progress; determination, full commitment, and intelligent application of knowledge and resources — both intellectual and financial — on the part of all those concerned and, particularly the recipients, are an absolutely indispensable key to development, and T.A. is a vital component in it

The Singapore-Australia Economic Cooperation Programme

Alex Buchanan

Liaison Officer

Asean-Australia Economic Cooperation Programme

The Singapore-Australia relationship is a rapidly developing and evolving one because of the excellent development of Singapore in recent years. Singapore is now reaching a near-developed country status partly because of the very efficient management of the economy and the development assistance which we have been hearing about since her independence. This is also tied up with the fact that most of the economic development assistance from Australia has been in the form of bilateral aid for reasons which I will go into later. Bilateral aid has been confined to two cases in this country. One is a pig wastes treatment plant which has been established here with Australian assistance and managed by the UNDP.

The project will cease with the completion of the establishment of the processing facility. Some details of this programme with Australian participation and with assistance from the FAO and UNDP can be seen from a video film produced for this project. The evolution of this particular project shows the change in Singapore from a recipient of aid to a partner in the process of mutual development. This project has enabled Singapore to become self-sufficient in pork production without a detrimental effect on the environment. However, the government has now decided to close down most of the pig farms in Singapore and the establishment is to be used mainly for research and training purposes.

The other example of bilateral relationship between Australia and Singapore is in the student-training programme. Currently, this is running at the level of A\$700,000 per annum which at present exchange rate is over S\$1 million per annum to support the training of Singapore students in Australia.

Another separate programme is the AUIDP (the Australian Universities International Development Programme). The name has been changed to Inter-

national Development Programme in recent years, because Australia has brought into this programme not only the universities but also the other tertiary institutions in Australia. Three institutions in Singapore have been participating in this, the NUS (the National University of Singapore), the Nanyang Technological Institute and also the Institute of Education. For all of these institutions and universities there have been some exchanges of staff — Australians coming to Singapore and Singaporeans going to Australia on a short-term basis regularly; in addition we now have six new long-term scholarships a year to Australia for people studying PhDs and MAs.

In these cases, the assistance is to the institution as a whole rather than to any particular faculty. In Indonesia, however, the University of New South Wales has assisted the Brawijaya University in setting up a Food Technology Department, training the staff, doing some of the teaching and establishing the institution. The University has done a similar thing with the Veterinary Faculty at the Agricultural University in Kuala Lumpur. But in Singapore, it is slightly different, assistance has been given to the institution as a whole.

Another relationship that I might mention, is in Singapore, the Colombo Plan Staff College which has been supported in part by Australia over the last ten years since Singapore has been acting as host for this Colombo Plan Staff College. We believe the college plays a useful role in the region in the promotion of technician education and the provision of training in areas including curriculum development which are useful to countries of the region. This particular staff college is to be relocated some time in the future, and we are currently looking at other sites that might be used for the development of this Colombo Plan Staff College.

The RELC (the Regional Language Centre) is part of the SEAMEO network of institutions. Modest Australian support for the RELC has been maintained since 1967. But larger than any one of these individual programmes between Australia and Singapore is the very large regional co-operation programme called the Asean-Australian Economic Co-operation Programme.

The Asean-Australian Economic Programme (AAECP) commenced in 1974 when Australia was invited to develop a programme with the newly emerging group called ASEAN. At this time many people had not heard of or understood what ASEAN was all about. ASEAN itself had not developed a relationship with any outside country. It was in January 1974 that ASEAN, for the first time, decided to have a dialogue regarding economic co-operation with a third country. Australia was very proud to be selected as that first partner to discuss such a programme with ASEAN. We very quickly developed a re-

gional co-operation programme primarily aimed at helping to develop co-operation between the ASEAN countries.

Under the Asean-Australian Economic Co-operation Programme, Australia has committed about \$87 million to this programme (about A\$12 million to A\$13 million per annum). Of this amount, about 10 to 15 per cent is flowing to Singapore. For example, a meat hygiene and quality control laboratory has been established here, which is part of our largest food handling project. The ASEAN countries with the funds at their disposal decided that they would like to have a meat hygiene, quality control laboratory and training centre. They agreed that Singapore should be the place for its establishment. A modern laboratory was built and fully-equipped with the Asean-Australian Economic Co-operation Programme funds administered by the ASEAN group. This laboratory, under the control of the Primary Production Department, now runs courses every year in meat hygiene and quality control. There are 12 to 15 participants for each course and the teaching is done by a multi-national group of people from the Horticultural College in Australia. Local staff are also involved.

This has been a particularly useful method of developing training, using the regional co-operation principles. It would not be feasible to build such an institution purely for the use of Singapore, there being not enough people here that need to be trained. Similarly, in the other ASEAN countries there is hardly enough need in each country to have a specific course of this nature. But by pulling the resources of ASEAN and Australia, we find that everybody gains. Collective development is of tremendous benefit to everybody. There are suggestions and indeed pressure that people outside the ASEAN region may be brought in for these courses under the AAEC umbrella.

You are all familiar with SISIR (Singapore Institute of Standards and Industrial Research) which the tourists of this country are probably more familiar with if it is spelt backwards. When it is spelt backwards it becomes RISIS which they all know is RISIS orchids. However, SISIR (spelling it forwards) has been involved also in regional co-operation programme. There was an ASEAN study of soysauce because it is a popular and well-developed industry in Singapore. It was natural that SISIR should take a lead in some of the research on soysauce for the benefit of all the ASEAN countries. One particular aspect of soysauce manufacture is the agent which is used to start off the process. The traditional way of doing this is to leave the beans in a humid room to allow them to break down the protein in the beans. Under natural conditions this might take a week, but if you select the right sort of organisms then it can

perhaps be done in two or three days and that is what SISIR decided to do. They selected a very good organism and they were able, by using this particular organism, to cut down the length of time. They were able to sell that particular organism to soysauce manufacturers in Singapore and other ASEAN countries. Regional co-operation is seen here to be of great economic benefit to the member countries.

Another example from Singapore is the study on reverse osmosis, ultra-filtration and a new technology — membrane technology — which can be used to separate solids from very dilute liquid wastes. Membrane technology is a fairly new technology. About eight years ago, we found that there were no membrane technology parted plants in Southeast Asia. We realized that this is a technology which could be very useful in 10 or 20 years. So, the ASEAN countries got together and purchased the plants and started experimental work in every ASEAN country.

In the Philippines, they work on coconut water; in Thailand, they work on pineapple wastes; in Singapore, they work on the effluent from soft drink factories and from other countries. They found (in SISIR) that by treating the effluent from the soft drink factories they could produce clean water, cut down the amount of water that had to be disposed of. Some of the water could be cleaned up and recycled and re-used in the factories. The process was found to be cheaper than buying water from Malaysia. For the factories, it was certainly cheaper than buying fresh water to treat the waste water. Good quality water recovered could be re-used in the factories. The technology, funded out of this programme and developed in Singapore, proves to be useful and can be used for all the countries of the region.

The countries in the region decided that they would like to publish a journal for the discussion of results of this and other research development programmes. The journal "Science and Technology for Development" was soon produced and published by the Singapore Science Council for the ASEAN Subcommittee.

Another successful project was the live-stock transport project. Now that Singapore has decided to phase out the pig industry, there is a need for pigs to be transported from Malaysia. But some people of Malaysia are rather sensitive about having pigs in open trucks going through their streets. So, how do we go about solving this particular problem? The ASEAN Food Handling Bureau in Kuala Lumpur which has been working with the Malaysian Authorities Veterinary Services Department and the Primary Production Department in Singapore, began developing special means of transport, not too expensive,

which would not offend people in the region. In transporting cattle, we have again a special problem. How do you take cattle within Malaysia from the central holding area out into a village? You have a truck about this high and you have cattle in there, and you have no where for them to walk out. How can they get from the truck down onto the ground? A lot of them used to break their legs on their way. Here again we have a special need to develop transportation systems. We have particular needs in this country where the local conditions are extremely important.

Transportation of fruit and vegetables poses another special problem. All the ASEAN countries except Brunei are interested in exporting to Singapore. Singapore is the most prosperous little community. The Filipinos are anxious to sell bananas, the Indonesians cabbages, the Malaysians temperate vegetables from the Cameron Highlands and the Thais rambutans. But there are serious transportation problems. The bananas from the Philippines, for example, if you put them in a ship, become ripe half way through the journey. By the time they get all the way here, they are useless. So, we found a technology in Australia, that if you put these bananas (the whole bunch of bananas) into a plastic bag, then they do not ripe nearly so quickly. If you put a little bit of potassium permanganate in the bottom of the bag then they ripen even less quickly.

This technology arises out of the fact that ethyl is produced by bananas and ethyl helps to ripen bananas. If you can cut down on the amount of ethyl that is going to get to the bananas then you cut down the time for ripening. If we take bananas in Southern Mindanao, put them in a plastic bag with a little bit of potassium permanganate in the bottom of the bag, then you can transport them by truck to the port. You can ship them to Singapore and they will still not be ripe when they get here. So, the people of Southern Mindanao now have a method of cheaply transporting their bananas from the field to Singapore.

We hope the producers in the Philippines will benefit. We hope the consumers in Singapore will benefit. Such technology is difficult to establish on a commercial basis until somebody sets it up and shows how it can be done; that is the sort of thing we have been doing, the same sort of thing with cabbages from the Cameron Highlands and so on. I could go on at some length, but the major point I would like to make is that these examples of co-operation between Singapore and Australia are things which Singaporeans could not have done on their own. Australians could not have done on their own, the Filipinos could not have done on their own as in the example with the bananas. It needed regional co-operation, it needed several people getting together for the common good and we think that that is what development assistance, particularly regional development assistance, is all about.

Research in National Development: The IDRC Experience

Lee Kam Wing
Health Sciences Division
International Development Research Centre

INTRODUCTION

For the past quarter century or so, two themes have consistently been in the forefront of discussions in the international community. The first relates to political independence: the creation of independent countries which were once governed by colonial powers. The second is the social and economic development of these countries.

As we now know, the attainment of the first goal has proved to be easier than the second. The number of independent countries which are members of the UN has tripled, while their living standards have improved only marginally, and in some cases, actually deteriorated. A good deal of the success achieved in the political arena will be tarnished if social and economic progress is not achieved and sustained.

Towards the later 1960's, after more than 20 years of developmental assistance, there was a weariness and a search for new directions. The world was beginning to realize that the promotion of international development is far more complex and long-term than anyone had previously imagined. Simple solutions, such as the transfer of capital, were seen to be no longer sufficient.

At the same time, industrialized countries were moving rapidly ahead. Science and Technology were powerful forces. Research provided the fuel. But where did the developing countries stand in this rapid change? Only 2 percent of world-wide research and development were being carried out by developing countries; and much of that were actually detrimental to their interests, involving research in synthetics, which would replace their own resources or markets. It was therefore obvious that, though science and technology promised much, this promise had not been realized for the developing regions of the world.

The United Nations Organization saw the growing gap in science and technology between the developing and the industrialized countries as one of

the major factors in the increasing disparity in living standards. It became quite clear that only a very small fraction of the world's scientific and technical resources was devoted to solving the problems of the developing world.

Increasingly, developing countries were looking to science and technology to provide that progress. They must do so because the application of science and technology bears promise of success in the quest for a better life. However, each presumes a competence within the developing countries, the capacity to absorb new information and techniques. But is this the case?

WHY WAS IDRC SET UP?

It is to contribute to that competence, as well as to support science and technology in the developmental process that the International Development Research Centre (IDRC) was created by the Canadian Parliament in 1970. This coincided with the start of the United Nations Second Development Decade. IDRC had the honour of having as its first Chairman of the Board of Governors, the late Lester Pearson, who had just produced his UN report "Partners in Development". This report was in many ways the inspiration for IDRC policies. Research, according to the Report, within developing countries was practically non-existent; as a result, scientific and technological achievements remained the sole prerogative of the industrialized nations. It was also recognized that research had not been an element in development assistance programmes because of its long-term nature and the inherent risks involved in research undertakings. The creation of IDRC was intended to overcome these problems by providing some independence and certainty of funds for research in the developing countries.

Lester Pearson often referred to the Centre as being "something that is unique in international organizations". This uniqueness was no accident. IDRC was designed to be different, both within Canada and in the international context. Since its inception, the Centre operated on the premise that the best people to decide what the developing countries needed were the people from those countries; and that research aimed at meeting these needs was best carried out by scientists of the developing world. Fifteen years ago, it was a fairly revolutionary approach. Today it remains unusual.

The activities of the IDRC are centred in the developing regions of the world, focusing on the adaptation and application of scientific and technical knowledge to economic and social advancement of these regions. The ultimate goal of these activities is to assist these countries to build up their research capabilities and to develop their innovative skills in order to solve their own pro-

blems. Underlying all IDRC's activities is the common goal to build a strong scientific research capability in the developing countries because local research competence is gained only by engaging in research. They might fumble, but they will learn. But before a project is approved by IDRC, it must satisfy other important criteria. A project should be practical-oriented towards the solution of a problem, rather than simply adding to existing knowledge. It must help improve the living standards of these countries. It must make the fullest possible use of local resources and manpower. It should result in better-trained and more experienced researchers and more effective research institutions.

THE IDRC EXPERIENCE

The administration of the IDRC's funds is handled by 4 main programme divisions: Agriculture, Food and Nutrition Sciences Division; Health Sciences Division; Information Sciences Division; and Social Sciences Division. For the last fiscal year alone, IDRC supported 88 new research projects in the region, spread over 10 countries: China, Fiji, HongKong, Indonesia, Korea, Malaysia, Papua New Guinea, the Philippines, Singapore, and Thailand. The total funds amount to about CAD 12.5 million. This of course does not include the numerous other projects supported over the previous 14 years by IDRC.

The fields of investigation which IDRC supports affect, directly or indirectly, the daily lives of people in the developing world, such as farming, food storage, processing and distribution; forestry; fisheries; animal sciences; energy; tropical diseases; water supply; health services; education, population studies; economics; and information systems.

Who are the ultimate beneficiaries of IDRC support? It is the three-quarters of the population of the developing countries who live in the rural areas. These people are usually the last to benefit from the advances of science and technology; and it is to them and to the betterment of the quality of their lives that most IDRC-funded projects are directed. Some support, however, goes to research on the problems of urbanization, particularly rural-urban migration, housing and sanitation technology for squatter settlements.

Training is an important part of IDRC support, for research competence can only be enhanced if researchers themselves are properly trained. However, the training the IDRC provides places emphasis on practical "hands-on" experience wherein the trainee can identify problems which he or she is familiar. In general, academic training outside the region is not encouraged.

An example of this sort of training is a request from the Primary Production Department, Ministry of National Development, Singapore, to IDRC

to provide funds to train environmental engineers and research scientists from the region at the Waste Treatment and Resource Recovery facilities, both at Sembawang and Punggol. This is a very good example of making good use of the facilities and transferring the years of experience through a training course in order to equip regional researchers to solve their own problems. IDRC looks very favourably at such proposals.

After having considered why IDRC was set up and the type of support provided, what then has been its experience? What are the problems and constraints? Is it an easy task ... this attempt at building research capability and getting people involved in research to solve their own problems? It is not. What then are some of the problems?

There is a gap to be bridged between researchers and policy-makers. Policy and applied research are supposed to be mutually beneficial to both researchers and the users of the research products. In practice, such research is neither recognized nor accepted as high priority by policymakers. Often, there is lack of understanding or even a communication gap between the researchers and the users or policymakers.

Another fundamental question which has to be asked is: Why is it that research in developing countries continues to remain out of touch with national priorities? Total blame cannot be directed at those policymakers who do not use the results of research projects. So is there anything wrong with researchers in developing countries? Most are western-trained, specializing in narrow fields. Applied research which often requires knowledge of several disciplines does not seem to suit returned scholars. Furthermore, research tools which were needed in their previous specialized training are not readily available in the developing countries.

Fundamental weaknesses in western-trained researchers trying to do research in developing countries situations are obvious. Academic links with their former universities are well kept. Under these circumstances, it is no wonder that research tends to be abstract and not relevant to the immediate use of the country. Most researchers consider their task completed when they have written up their findings. There is little incentive to bring such findings to the notice to potential users.

In addition, researchers in developing countries have to choose between publishing their research findings in academic journals and hence winning recognition for academic excellence and applying their research to practical purposes. For advancement of their academic careers, most researchers seem to favour the former course of action.

Furthermore, problems in developing countries do not come in neatly parcelled disciplines. Solution to problems requires a multi-disciplinary approach where several researchers of different interests have to come together. This requires coordination and research management skills, another area quite deficient in developing countries.

Because of the communication gap between policymakers and researchers and, equally important, between researchers, duplication of research saps away precious research funds and time.

THE ROAD AHEAD

Though problems exist, there are encouraging signs that applied research has high prospects in developing countries. Research in the hard sciences, especially in agriculture, industrial improvements and biological studies, always has ready clients.

Key problems, such as those discussed above, have been identified and recognized. National research councils or review committees have been set up to coordinate research and to see to it that research is relevant to the country. This is an important step forward.

Institutional frameworks for research, both regional and national, are growing, facilitating a larger core of regional researchers. These regional networks or groupings served the common purpose of promoting contacts, dialogues and interactions among researchers, institutions, and government departments.

There is also an observable feedback and this is reflected in the curricula of training programmes of academic institutions in developing countries. Training institutes and universities now have more courses on subjects relating to local and regional problems.

Though these trends are slow and painful, gradually, they become distinct. The momentum is building up and it would not be too optimistic to say that in the near future, research will take on its rightful role in solving the social and economic problems of the region.

What will be IDRC's role in the years ahead? To some extent, it will be more of the same: more support for research to meet the needs of the developing countries, more science and technology for development. However, there will be a greater sense of urgency. The Brandt Commission warned of the "immense risks threatening mankind" ... and he was not talking only about the arms race. He was also referring to the growing inequality which continues to divide our world into the rich and the poor. The Brandt Report sets out a list of priorities for the next two decades. These too will be the priorities for IDRC.

The Role of International Technical Assistance in National Development A View from UNESCO

V. Prakash

Director

United Nations Educational, Scientific and Cultural
Organisation

This seminar comes at an opportune time as there are deep problems in international co-operation, to the extent that it is not uncommon to read in the Asian-Pacific media such phrases as "... the sort of international consensus needed to underpin such multilateral institutions (ADB) is rapidly falling apart"); or "The political contest has changed further in that the strongest countries, rather than being in the vanguard of international co-operation, now show an increasing tendency in dealing with issues of primary importance to themselves, to isolate themselves from the universalist multilateral system of the United Nations, to withdraw from constructive engagements with the Third World, and to go it alone in exclusive groupings of the privileged". And, further, right here in Singapore, the Government has given its notice of intention to withdraw from Unesco with effect from 31 December 1985. As you are well aware, there are many other examples of the breaking down of international cooperation, both in Unesco, as well as in the whole system of organizations of the United Nations.

In order to shed some light on this situation you have asked the question: "What is the Role of International Technical Assistance in National Development?" I shall try to express my views on this subject based on my experience with one Specialized Agency of the U.N. system, Unesco.

International Co-operation

First I think we should clarify what we mean by "international". We mean international co-operation carried out through the U.N. System, the Asian

Development Bank, and such inter-governmental organizations as ASEAN. Let us not forget that the U.N. system embraces the U.N. itself, the funding sources such as: the UNDP, UNFPA, WFP, the World Bank (incl. IDA), the IFC, and UNICEF; and the Specialized Agencies such as UNESCO, WHO, ILO, FAO, ITU, WIPO, ICAO, and IMCO. We must also not overlook UNIDO, which is an extremely important organization, but not strictly speaking a specialized agency. Further, there are the "emergency" organizations, such as UNHCR, UNRWA, and UNDRO, as well as the trade organizations such as UNCTAD and GATT, and the unique organization of United Nations volunteers. The above organizations all have an inter-governmental character, as opposed to the non-governmental organizations, which do much good work but which by definition do not work under engagements with government.

Some of the characteristic qualities of international co-operation under the auspices of the organizations of the United Nations system are:-

- (i) co-operation is extended at the request of the Member States, and to a great extent on the terms defined by the governments;
- (ii) co-operation is based on universal principles: i.e. it is not tied to any one political, economic, religious, or philosophical system;
- (iii) mutual co-operation is essential; i.e. it recognizes the interdependence of nations;
- (iv) the resources of the whole world can, potentially, be brought to bear on a problem;
- (v) the U.N. system is an ideal forum for dealing with problems concerning more than one Member State.

Technical Assistance

"Technical Assistance" could have a variety of meanings, but we shall consider it as "technical co-operation" or "operational activities"; i.e. programmes oriented towards development co-operation — seeking for example, to make programme activities more supportive to development goals of countries. In Unesco we think of operational activity as opposed to "normative activity"; however, it is increasingly more difficult to draw a clear line between operational activity and the Unesco regular programme activities, such as, for example, MAB, UNISIST, IIEP, IPDC, and the various cultural campaigns, which are of direct relevance to co-operation for development. For the purposes of this paper (and indeed of most inter-agency reporting on "operational activities"), however, "technical co-operation" and "operational activities" are defined as

those development co-operation activities which are financed from extra-budgetary sources. We must also not forget that we are concerned with international co-operation in technical assistance, and not international charity, which could have humiliating aspects in this context.

National Development

The term "national development" is probably the most complex. Generally, "development" means the state of having food, clothing, housing, health care, access to education, and job opportunities. In the third world today, most countries pursue development within the framework of "development plans", which describe the goals and inputs required over a fixed time period. Thus, any collaboration from outside the country must conform to the development plan.

But aside from these well known economic goals and development plans there is another aspect of development which is frequently discussed today, that is the human dimension of development. This dimension includes "... immense need for dignity which they (the peoples of the world) feel and which they want ultimately to express in actions; it is to reclaim possession of themselves; it is to find, within their own identity, the inspiration for a collective effort to achieve progress and justice, whole-heartedly accepted because it responds to their deepest desire; it is to be able to have free access to the heritage of scientific and technological knowledge of the whole of mankind, so that they may draw from it themselves everything that is needed for their progress and to enable them, in their turn, to take part in the growth and spread of such knowledge. External financial aid and technical assistance can bear fruit only in that context, by fitting in with the real needs and aspirations of each country and of each region". This meaning of "development" could be summarized best in the words of the Director-General of Unesco: "... giving back the man the full meaning of his life".

The Unesco Regular Programme

Now I should like to turn to the role of Unesco in international technical assistance for national development. However, in order to understand this role one must first examine the Unesco Regular Programme as a whole.

Unesco carries out international programmes in education, science and technology, the social sciences, culture, and communication.

These programmes are well known and I do not have to elaborate on

them here. It is because of the knowledge and experience gained through this international programme that Unesco has the competence to work on projects of technical assistance for national development. The international programme inspires and nourishes Unesco's efforts for national development, and the experience gained through national projects, in turn, feeds back practical, concrete examples for the formulation of the international programme.

The Extra-budgetary Programme

From the very inception of the Technical Assistance programmes in Unesco in the early 1960's, one axiom of the Organization's general policy has been the principle of integrating projects financed out of the Regular budget and those financed from extra-budgetary resources into a coherent programme, using different administrative procedures to achieve common aims or related objectives with the same ideas underlying all. In this regard the General Conference at its thirtieth session in 1964 passed resolution 6.11, which stated, inter alia:

- "2. the maintenance of the unity of the programme through integration of the resources available from various resources, ... should be directed towards emphasizing the essential aims and constitutional autonomy of Unesco, especially through the integration of extra-budgetary resources with regular resources.
- "3. the orientation mentioned in the previous paragraph implies the necessity of seeking to secure convergence of the intellectual, operational and ethical aspects of Unesco's activities within its field of competence.³⁾.

Unesco is involved in operational activities in two ways, one by participating in co-operative programmes, and, two by acting as executing agency for projects financed from extra-budgetary resources. The co-operative programmes are geared to the provision of technical services such as project preparation for the World Bank, or technical advice to UNICEF, WFP — but these programmes do not necessarily include a direct project-execution role for Unesco. On the other hand, when Unesco has an executing agency role, such as for projects financed by UNDP and UNFPA, Unesco is responsible, in consultation with the government, to hire experts and consultants, place fellows, purchase equipment, and follow every aspect of project planning, implementation, monitoring and evaluation.

In 1984, the major sources of funding for technical co-operation projects executed by Unesco were: UNDP, self-benefiting trust-funds, donated trust-funds, World Bank and regional bank loans (technical assistance components), and the UNFPA.

In Singapore, Unesco has for many years been the executing agency for projects financed by the United Nations Development Programme (UNDP). The following is a list of the approved projects during the period 1979-1984.

Number	Project	Source of funds	Period	UNDP Contribution \$
SIN/78/004	Vocational and Industrial Training	UNDP	1979-1983	267,350
SIN/78/010	Information Service for Educational Planning	UNDP	1980-1982	178,000
SIN/79/006	Commercial Education System	UNDP	1980-1981	76,000
SIN/78/005	Ngee Ann Tech. College	UNDP	1979-1985	340,000
SIN/78/009	Singapore Polytechnic, Phase II	UNDP	1979-1985	309,183
SIN/78/003	Management, Supervision & Evaluation of Schools	UNDP	1979-1984	152,000
SIN/78/006	Centralized Equipment Wkshp, Univ. of Singapore	UNDP	1980-1981	40,000
SIN/80/002	Instrument and Control Programme	UNDP	1980-1985	238,000
SIN/80/003	Planetarium & Science Exhibit	UNDP	1980-1982	13,000
SIN/80/007	Development of Resources and Staff Training	UNDP	1981-1982	157,902
SIN/80/009	Ngee Ann Polytechnic	UNDP	1982-1985	154,000
Total UNDP Contribution:				\$1,925,435

For these projects Unesco has provided consultant services, assisted in the placement of fellows, and purchased sophisticated equipment, in accordance with the specifications laid down by the host institutions.

Also, through the regular programme and participation programme specialists from Singapore have collaborated in the Unesco programmes in science and technology in the fields of basic sciences and computer sciences; technological research and higher education; science, technology and society; and the environmental sciences. We feel that this exposure to international and regional trends and problems has also made an indirect contribution to national development.

Summary on the Role of Unesco in International Technical Assistance for National Development

Based on the knowledge and experience gained through the implementation of international programmes in education, science and technology, social sciences, culture, and communication, Unesco is in a unique position to work with national agencies for the identification of development problems and for the definition of courses of remedial action taking into account a country's development plan and the sources of external assistance, be they bilateral or multilateral. The problems of national development are many and complex. There are no simple answers to such problems as education for work, urban development, environmental control, the improvement of the conditions of life in rural areas, the applications of science and technology to development, the use of modern communication media for a development consonant with the dignity of man, and the preservation of cultural identity while, at the same time, taking advantage of all that modern science and technology have to contribute to the improvement of conditions of life. Through its international programmes Unesco has gained a perspective on many problems affecting socio-economic development; by co-operation with Unesco, or with any UN agency, a country is choosing not to go it alone, not to analyse problems and decide on solutions solely on the basis of its own experience.

Unesco (and the other agencies of the UN system) is a window to the world; in its fields of competence through co-operation with international agencies, like Unesco, individuals can open their minds and their hearts to see beyond the particular, the individual; and the national, to break away from parochial consideration and restraints; and to look at problems from an international technical assistance for national development is to bring international experience and resources to bear on the solution of national development problems.

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The ASEAN-Australia Economic Cooperation Programme

Alex Buchanan

Liaison Officer

Asean-Australia Economic Cooperation Programme

The Association of South East Asian Nations (ASEAN) was founded in 1967 by Indonesia, Malaysia, the Philippines, Singapore and Thailand with Brunei Darussalam joining later in 1984.

Since its inception ASEAN has aimed to promote regional programmes of technical and economic cooperation. This regional cooperation has been steadily developing — stimulated substantially by projects involving the dialogue partners, Australia, New Zealand, USA, Canada, Japan, EEC and UNDP.

Australia in 1974 was the first to establish a dialogue relationship with ASEAN and we are told that the ASEAN-Australia Economic Cooperation Programme (AAECP) has been an effective vehicle for regional cooperation. Certainly the AAECP has quickly developed a large number of cooperative regional projects, especially in scientific R&D and many have been very successful. The scope of these projects is shown in Table I and Table II.

Consideration is now being given to extending the AAECP into an ASEAN-Pacific Cooperation programme of Human Resources Development (HRD) and we are studying the implications of a call by the ASEAN Standing Committee for Papua New Guinea involvement in most of the projects under the AAECP, i.e. those under the ASEAN Committee on Science and Technology (COST), the ASEAN Committee on Food Agriculture and Forestry (COFAF) and the ASEAN Committee on Social Development (COSD).

There has not been a comparative study of which of our many initiatives has been the most successful but the predominance of science and technology projects especially in research and development is not entirely coincidental.

Scientists around the world have for centuries been comparing notes with one another and collaborated effectively across national boundaries more than any other group. Kerwin (1981) put it this way. "Of all the communities on this planet that have sought to communicate in a positive fashion beyond tribal or parochial boundaries, the international scientific community must

surely be acknowledged as one of the most successful."

So we should not be surprised that Science and Technology has led to so many successful ASEAN regional cooperation projects.

The benefits of international cooperation in research and development include the sharing of resources. There are great advantages in collaborating with others who can supplement local resources to speed up development.

One possible scenario is for a group of developing countries to join together with a donor country to share their resources in what the UN calls TCDC — Technical Cooperation Between Developing Countries.

In this case the donor usually wants a voice in setting the topic and in the method of implementation — but this is not necessarily so.

The AAECF food research and development projects offer us an interesting case study in the benefits, advantages, methods and problems of regional co-operation in scientific research and development.

The ASEAN-Australia Economic Co-operation Programme (AAECP) started in 1974 with two food research and development projects which were effectively administered by ASEAN sub-committees, with a low key Australian involvement designed to allow the ASEAN group to set its own priorities and arrange for implementation, ensuring effective regional cooperation. The subjects, which were of mutual interest to the ASEAN countries, offered scope for technology transfer and also offered benefits from regional co-operation in developing and applying these technologies.

The result was the successful development of several technologies which were very useful for several ASEAN countries.

A few examples were:

1) Malaysia suggested that the ASEAN Food Handling Bureau (AFHB) design a returnable plastic container to handle fresh fish at ASEAN fishing ports and marketing outlets. The initial trials were conducted in all ASEAN countries and coordinated by an ASEAN organisation (the AFHB) so that the experience from all the trials was pooled. In the initial trials, only one, at a small fishing village in Indonesia, was really successful. There were lessons to be learned from this and from the others as well. With the experience of these initial trials, the AFHB arranged a full scale conversion to returnable plastic containers at the main Bangkok fish market.

There were problems, but they were satisfactorily resolved and the scheme was commercially successful — with the initial costs being recouped

in less than 2 years. The funds generated in this way were used to update other fish markets in other parts of Thailand.

At the same time the Bangkok experience was used in further trials in Malaysia, the Philippines, Brunei Darussalam, Indonesia and Singapore.

Simultaneously, a new industry was established in Thailand as a Thai-Australian commercial joint venture, to manufacture High Density Polyethylene returnable containers for a variety of purposes — including transporting fresh fish. Similar joint venture developments in the Philippines and Malaysia are also underway.

2) Improved methods of transporting fruit and vegetables over long distances have been tried in commercial trials, allowing the successful development of new markets in Singapore for bananas, cabbages, lychees, and other produce from the Philippines, Indonesia, Thailand and Malaysia.

3) A first class meat hygiene and quality control laboratory was built and equipped in Singapore with funding from the AAECF. It is managed by the Primary Production Department. Each year, from October to December, they conduct a "Meat Safety and Quality Control" training course for up to 3 people from each ASEAN country with instructors from the Hawkesbury Agricultural College of Australia. The pooling of resources to conduct specialised training courses like this is an obvious advantage of regional cooperation.

4) Extruder technology, widely used commercially to produce animal feed, was developed in Thailand to produce low-cost protein foods for infants and nutritious snack foods. This technology has been transferred to and adapted in other ASEAN countries.

5) A food science and technology journal (the ASEAN Food Journal) is being published to stimulate and publicise food R&D in the region. The need was recognised in all countries but none had the capacity to do it alone.

Each of these examples, and many more could be given, are positive results of regional cooperation where success depended on the pooling of resources and countries working together towards a common goal. Herein lies the primary benefit of regional cooperation in research and development.

It is more difficult to pinpoint the reasons why some regional projects have been unsuccessful but we have some experience of the pitfalls in interna-

tional cooperation. It has been said that regional development projects cannot work. However, the AAACP has certainly proved that is not correct.

Yet it is generally accepted that the more partners one has, then the less likely the venture is to succeed. The first 10 years of the AAACP showed that the then 5 countries of ASEAN could work together in an effective well-coordinated way. However, as time went on we found in some ways things became more difficult.

A major difficulty was that instead of just 5 or 6 scientists representing each of the cooperating parties, we started to get other interested parties with new perspectives becoming involved.

Cooperation is feasible with small groups of like-minded people (e.g. Food Scientists) even if they represent different countries and different cultures. However, cooperation can be difficult if some partners have different perspectives and different goals.

For those who have found such cooperation difficult or impossible, may we suggest they consider all the following for regional research and development projects:-

1. Liaison with Policy Makers

Liaison with everyone concerned can be a very time consuming aspect of any regional cooperation programme. Discussion with policy makers from all participating parties is essential in the planning stages, but once implementation commences, the scientists concerned should be allowed to proceed within the established guidelines.

2. Regional Administration

The AAACP projects have generally been administered by committees of ASEAN representatives without the formal presence of a donor representative. This has successfully developed regional cooperation and a sense of collective responsibility. Donor representatives can so easily dominate the decision making processes in a regional meeting that their presence makes it more difficult for regional cooperation to develop effectively.

3. Project Specialists on Administrative Committee

Without a sufficiently strong common purpose, a committee meeting can be a series of monologues without real interaction between the participants. For example, a National Nutrition Programme Planning Committee commonly contains all interested parties from the departments of health, education, agriculture, etc. Such an assembly can easily deteriorate into a forum for

the health people to seek more hospitals, the education people to seek more schools, the agriculturalists to seek more irrigation schemes, etc. (Field, 1977). In the same way, an AAECF research committee can easily become embroiled in arbitrarily dividing funds between the five countries, or in dividing funds between competing projects, without reference to the value or merit of individual submissions or projects. To overcome this tendency, there must be a common goal and it must be sufficiently important in the minds of the participants.

In practice, we have found that such a unity of purpose can quickly develop in groups of researchers if they represent a single field such as food technology, rice, horticulture, veterinary medicine, fish, etc. In these groups, the unity of professional aims and ambitions can overcome nationalistic divergence. Such unity is however more difficult with professional administrators who see themselves as having a special interest to protect.

4. External catalyst

The sovereign States of Australia needed the assistance of a federal body in a co-ordinated effort to unify their food legislation. ASEAN has as yet no large coordinating body such as Australia has in Canberra. Thus co-operation in food and nutrition research within ASEAN was assisted by support from Australia.

At the beginning of a regional co-operation programme, when most of the participants are interested only in their own private objectives, the "common good" may not be taken seriously. An "outsider" can often be a unifying force. In the TCDC situation, the donor has an obvious role to play here.

However, it is vital that the outsider's role is not overplayed and that the regional group develops its own identity and leadership. In this way, a stable long term co-operative relationship can be developed.

5. Leadership

Good leadership is difficult to find in a regional grouping but it is at least as important as in a national R&D organisation. The person should ideally be from the region rather than an outsider or donor representative.

However, in a situation where the people concerned are not regularly working together and are not familiar with one another, it takes some time for such talents to surface and be given the opportunity to be effective.

An alternative method of providing this leadership was suggested by Mahler (1980). He felt most networks will not reach the critical mass needed to produce good quality research, but a good coordinator at a large research station can provide the leadership and focus to make a network arrangement productive.

6. Potential gains for all

Gains to one participant country, from a regional programme, should not be at the expense of another if there is to be continuing cooperation. Advances in food technology or in the nutritional status of children through a joint research project can help some, without hurting anyone. This is a distinct plus for regional cooperation in many types of scientific research and development.

7. Collaboration Incentives Available

The advantages to each member of the group should obviously be more than adequate to compensate for the time and effort involved. There is no doubt that regional cooperation involves additional travelling, meetings and administrative complications. The extra effort from all concerned must be worth it.

Ideally, there should be extra technical and financial benefits, better human resources development, or other incentives to ensure everyone concerned is happy to participate.

The world today is strewn with regional organisations and co-ordinating bodies of limited usefulness whose basic problem is that they offer no real incentive for the individual members. Co-ordination may offer little, if any, benefit to members, apart from the occasional overseas trip. My inclination would be to think twice before supporting any regional body that does not produce tangible results and cannot maintain at least 75% attendance of members at meetings. The AAECF nearly always has 100% attendance.

8. Adequate funding

Adequate funding is a precondition for success with any technical co-operation programme. This applies as much to science agreements with developed countries as it applies to TCDC, or regional co-operation programmes with external assistance, but it is surprising how often the money is overlooked.

9. Adequate planning

The AAECF projects offer adequate funds to induce the ASEAN scientists to devote time and effort in planning their R&D programmes. Research leaders in developing countries receive an incredible number of visitors and enquiries from people who propose scholarships, training courses, equipment and money for specific purposes. Few offer the AAECF formula of assistance to the people concerned to plan the most effective method of using the available funds. This is particularly important for regional programmes.

Summing up, the AAECF has been one of ASEAN's most successful ventures because the international community of scientists was given the authority to set priorities and administrative procedures for effective collaboration in research and development. The projects fitted in with the national and regional priorities of the ASEAN countries and Australia was willing to support ASEAN's priorities.

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**TABLE I. AAECF PROJECT COMMITMENTS AND
EXPENDITURE**

PROJECT	FUNDS COMMITTED	TOTAL EXPENDITURE TO 31.10.84
Protein	7,500,000	6,910,741
Food Habits	2,000,000	163,499
Food Handling	19,830,000	14,122,509
Food Technology	1,500,000	1,232,119
Food Wastes	7,500,000	5,605,621
Crops Post Harvest Programme	540,000	143,517
Animal Quarantine	114,000	163,551
Australian Admin.	1,767,350	1,332,393
Consumer Protection	190,000	98,567
Diabetes Prevention	3,200,000	53,074
Education	2,860,000	2,445,025
Energy Co-op.	3,235,000	1,169,893
Eradication of FMD	150,000	69,499
Feasibility Studies	610,000	502,987
Forest Tree Improvement Centre	250,000	64,539
Health — ARI	50,000	15,000
Joint Research	3,253,000	2,685,456
Marine Science	5,049,000	43,493
Media and Information	3,480,000	700,356
Management of Science and Technology	2,265,000	16,829
Special Visits	700,000	315,727
Population	9,310,000	4,736,880
ASEAN Food Conference 1985	—	50,000
Trade and Investment		
Trade Fairs 1978-80	2,096,200	2,096,153
— TIPP 1976-84	5,650,000	4,037,053
Drug Prevention Film	67,650	67,650
	80,167,200	48,801,014

TABLE II. COUNTRY BREAKUP OF AAACP EXPENDITURE FOR 1983/84

Project	Australia	Indonesia	Malaysia	Philippines	Singapore	Thailand	Project Total
Protein Project	34,071	132,903	156,070	105,077	124,324	7,592	560,037
Food Handling	90,521	562,986	1,181,250	702,999	177,750	327,602	3,673,108
Trade Promotion	1,509,340		442	22,169			1,531,509
Education	40,112	62,987		53,987	483	99,745	257,757
Australian Liaison-Admin.	145,107		138,774			104	283,985
Quarantine			49,983				49,983
Joint Research	235,068		299,657		(800)	138,150	672,075
Population	31,405	971,097	240,661	242,445	15,445	15,225	1,739,250
Food Wastes	49,008	303,223	198,000	268,972	140,000	276,000	1,235,203
Energy	71,921	2,854	371,204	123,822	170,340	260,146	1,000,296
Food Technology	2,847	100,000	95,016	57,890	42,500	139,000	437,253
Feasibility Study	427,241						427,241
ASEAN Special Visits	219,585						219,585
Foot and Mouth Disease	15,304						15,304
Media Training	457,165						457,165
Crops Post Harvest				128,802			128,802
Forest Tree	35,532		23,352				58,884
R & D Management	7,457	1,629	3,913	2,182	300	1,257	16,641
Diabetes	3,074		50,000				53,074
Food Habits	450						450
Marine Science	4,645	3,166	469	155	733	27,600	36,768
ASEAN Food Conference			25,000	25,000			50,000
TOTAL	3,379,854	2,140,845	3,463,791	1,733,500	670,867	1,515,513	12,904,370

Appendix 1

United Nations Association of Singapore

Seminar on the Role of International
Technical Assistance in National
Development
27 May 1985

PROGRAMME

0900 hours	Registration
1000 hours	Welcoming Address by DR THAM SEONG CHEE President United Nations Association of Singapore
1015 hours	Tea/ Coffee Reception
Session I	Chairman — DR THAM SEONG CHEE
1045 hours	“International Technical Assistance — Past, Present and Future” by MR Y Y KIM Regional Representative United Nations Development Programme
1115 hours	“The Singapore-Australia Economic Cooperation Programme” by DR ALEX BUCHANAN Liaison Officer Asean-Australia Economic Cooperation Programme
1145 hours	“Research in National Development — The IDRC Experience” by MR LEE KAM WING Programme Officer International Development Research Centre

1215 hours	Lunch
1330 hours	“Waste Resource Recovery and Pollution Control — Animal Wastes” — A Video Presentation
Session II	Chairman — PROF E PAUL TAIGANIDES
1415 hours	“The Role of International Technical Assistance — A View from UNESCO” by MR V. PRAKASH Director United Nations Educational, Scientific and Cultural Organisation
1445 hours	“The Asean-Australia Economic Cooperation Programme” by DR ALEX BUCHANAN Liaison Officer Asean-Australia Economic Cooperation Programme
1515 hours	Tea/ Coffee Break
Session III	Chairman — DR THAM SEONG CHEE
1545 hours	Forum — Panel of Speakers
1630 hours	Close

Appendix 2

Seminar on the Role of International Technical Assistance in National Development

LIST OF SPEAKERS

1. **MR Y Y KIM**
Regional Representative
United Nations Development Programme (UNDP)
Kuala Lumpur
2. **MR VIVAK PRAKASH**
Director
United Nations Educational, Social and
Cultural Organisation (UNESCO)
Jakarta
3. **DR ALEX BUCHANAN**
Liaison Officer
Asean-Australia Economic Cooperation Programme (AAECP)
Kuala Lumpur
4. **MR LEE KAM WING**
Programme Officer
International Development Research Centre (IDRC)
Singapore

SESSION CHAIRMEN

1. **DR THAM SEONG CHEE**
President
United Nations Association of Singapore (UNAS)

2. PROF E PAUL TAIGANIDES
UNDP/FAO Project SIN 74/006

LIST OF PARTICIPANTS

DIPLOMATIC MISSIONS

1. MR SUBIR BHATTACHARYYA
Acting High Commissioner
Bangladesh High Commission
2. MR A V NEBOGATOV
First Secretary
USSR Embassy
3. MR SUBAGIYO WIRYOHADISUBROTO
Counsellor (Economic)
Indonesian Embassy
4. MR CHAIDIR SIREGAR
Third Secretary
Indonesian Embassy
5. MR MAX GAYLARD
Australian High Commission
6. MR AWANGKU YUNUS
Second Secretary
Brunei High Commission
7. MR MARK WOOLFORD
Second Secretary
New Zealand High Commission
8. MR MOUSTAFA RAGAB
Second Secretary (Commercial)
Embassy of the Arab Republic of Egypt
9. MR FAHD AL FAHD SHAMMARY
Saudi Trade and Commercial Office
Saudi Embassy

10. PROF HILDEMARTA RIERA
Embassy of Panama
11. MRS ROSMIDAH ZAHID
Malaysian High Commission
12. MRS LINDA CHEW
Marketing and Research Officer
Embassy of Finland

UN-ASSOCIATED AND OTHER ORGANISATIONS

1. MS WELMENT VAN AARDENNE
Acting Representative in Singapore
United Nations High Commissioner for Refugees (UNHCR)
2. MR NURUL ALAM
Assistant Regional Representative
United Nations Development Programme (UNDP)
3. MRS MINNA CHIEW
Programme Officer
UNDP
4. MRS Y Y KIM
UNDP
5. MR KWAN WAI CHONG
United Nations Students' Association of Singapore (UNSA)
6. MR PHILIP LIM
UNSA
7. MR ANDY YEE
UNSA
8. MR STEVEN YEO
UNSA
9. MR WILLIAM YEO
UNSA
10. DR PEDRO FLORES
International Development Research Centre (IDRC)

11. MR RAY POWELL
Colombo Plan Staff College for Technical Education
12. MISS KHENG HWEE TAN

GOVERNMENT DEPARTMENTS & STATUTORY BOARDS

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Deputy Director
Primary Production Department
2. DR HO HON FATT
Primary Production Department
3. MISS NG SUAN ENG
Assistant Director
University Liaison Office
National University of Singapore
4. MRS ELLICE LIM
Administrative Assistant
University Liaison Office
National University of Singapore
5. MR NG WOON KOW
Superintendent
Public Utilities Board
6. MR TNG HO CHUAN
Senior Engineer
Public Utilities Board
7. MR CHAN FOON CHEE
Public Works Department
8. MR SOON BOON HAI
Civil Aviation Authority
9. MISS CHUNG SIU PING
Civil Aviation Authority
10. MISS WENDY TAY
Ministry of the Environment
11. MISS SHARON QUAH
Ministry of the Environment

12. MR JIMMY OOI
Telecommunication Authority of Singapore
13. MR ER SUNG KHENG
Telecommunication Authority of Singapore
14. MR M K DAS GUPTA
Head Shipbuilding and Offshore Engineering
Ngee Ann Polytechnic
15. MISS S ANGAMMAL
Ministry of Finance
16. MISS ELIZABETH HO
Ministry of Finance
17. DR CH'NG AI LEE
Veterinary Public Health Complex
18. KOH CHAI LYE
Pig & Poultry Research & Training Institute
19. MR YAP BOON CHARK
Pig & Poultry Research & Training Institute
20. MR WOON CHANG CHYANG
Pig & Poultry Research & Training Institute
21. PROF E PAUL TAIGANIDES
Pig & Poultry Research & Training Institute
22. MR KHOO BOON KENG
Public Works Department
23. MR J B SENANAYAKE
Singapore Polytechnic
24. DR HO YEW KEE
Primary Industries Enterprise
25. MRS ROSA KANG
Science Council of Singapore
26. MR SIEW HING HYUN
Science Council of Singapore

BUSINESS ORGANISATIONS

1. **MR BENJAMIN TEO**
Assistant Secretary
Singapore Federation of Chambers of Commerce & Industry
2. **MISS JULIANA GIAM**
Assistant Secretary
Singapore Federation of Chambers of Commerce & Industry
3. **MR KNEJI NASHIDA**
Japanese Chamber of Commerce & Industry
4. **MR ABDUL AZIZ**
Secretary
Singapore Pakistan Chamber of Commerce
5. **MR TAHIR KARIM**
Honorary Treasurer
Singapore Pakistan Chamber of Commerce
6. **MR THOMAS SEET**
Officer Economics Department
DBS Bank
7. **MR STEVEN TENG**
Singapore Manufacturers' Association
8. **MISS ALICE CHUA**
Singapore Manufacturers' Association
9. **MR B DERRICK**
John Connell Consultants (Pte) Ltd

JUNIOR COLLEGES & PRE-U CENTRES

NO. OF PERSONS

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ANGLO-CHINESE JUNIOR COLLEGE	25
CATHOLIC JUNIOR COLLEGE	15
HWA CHONG JUNIOR COLLEGE	15
RAFFLES JUNIOR COLLEGE	5
ST ANDREW'S JUNIOR COLLEGE	15
TEMASEK JUNIOR COLLEGE	1
VICTORIA JUNIOR COLLEGE	16
ANG MO KIO SECONDARY SCHOOL	7
BARTLEY SECONDARY SCHOOL	8
BEATTY SECONDARY SCHOOL	8
BEDOK SOUTH SECONDARY SCHOOL	8
BENDEMEER SECONDARY SCHOOL	8
SWISS COTTAGE SECONDARY SCHOOL	8

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